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Background and General Comments

The Energy Advance Center¹ (“EAC”) is a voluntary association of energy and energy-related organizations dedicated to advancing the development and deployment of carbon capture, utilization, and storage (“CCUS”) to achieve a cleaner energy profile and improve U.S. economic and energy security. The EAC includes companies from across the entire CCUS value chain. EAC members represent over 50% of existing CO₂ pipeline transportation infrastructure in the United States and are the largest users of anthropogenic CO₂ in enhanced oil recovery operations.

The EAC thanks the Department of the Treasury (“Treasury”) and the Internal Revenue Service (“IRS”) for the opportunity to submit comments on the Section² 45Q tax credit (the “45Q Credit” or the “Credit”). Section 45Q represents a significant opportunity to both enhance the deployment of CCUS projects and foster innovation in capture and storage technology. Such advancements would allow CCUS to mature as both a tool for mitigating greenhouse gas emissions and unlocking new domestic energy resources. As a matter of overarching policy, Treasury should implement the tax credit through published guidance and regulations in a manner that facilitates the greatest number of potential projects. Congress understood that reforming the credit could unleash a wave of new clean energy and manufacturing jobs, while enhancing U.S. energy security and environmental stewardship.

The statute creates three pathways to qualify for the Credit: disposal of qualified carbon oxide (“CO”)³ in underground formations⁴; use as a tertiary injectant in enhanced oil recovery (“EOR”); and utilization in an approved process that results in the CO being stored through “fixation,” “chemical conversion,” or commercial use where the CO will remain stored.⁵ While all of these pathways to the Credit hold promise and such disposal constitutes an effective⁶ and accepted

¹ The members of the Energy Advance Center are: BP, Chevron, ConocoPhillips, Denbury Resources, Exxon Mobil Corporation, Kinder Morgan, Mitsubishi Heavy Industries, and Southern Company. More information about the EAC can be found at <https://www.eaco2.org>.

² Unless otherwise provided, all references to the sections are to the Internal Revenue Code of 1986 as amended and in effect (the “Code”); all references to regulations are to Treasury regulations promulgated under the Code.

³ Prior to the 2018 amendment, the 45Q carbon oxide credit was only applicable to carbon dioxide, rather than carbon oxide. In these comments, we use the terms “carbon oxide”, “carbon dioxide”, “CO”, and “CO₂” interchangeably.

⁴ “Observations from engineered and natural analogues as well as models suggest that the fraction [of stored CO₂] retained in appropriately selected and managed geological reservoirs is very likely to exceed 99% over 100 years and is likely to exceed 99% over 1,000 years.” IPCC. 2005. IPCC Special Report of Carbon Dioxide Capture and Storage. Prepared by Working Group III of the Intergovernmental Panel on Climate Change. Metz, B., O. Davidson, H.C. de Coninck, M. Loos, and L.A. Meyers (eds.). New York: Cambridge University Press.

⁵ CO₂ molecules are trapped by both physical and geochemical mechanisms. Physical trapping occurs when an impermeable cap rock prevents the upward migration of CO₂ and capillary forces in pore spaces force the retention of CO₂. 75 Fed. Reg. 77233-77234 (Dec. 10, 2010)

⁶ “For well-selected, designed and managed geological storage sites, the vast majority of the CO₂ [disposed in underground formations] will gradually be immobilized by various trapping mechanisms and, in that case, could be retained for up to millions of years.” IPCC 2005.



mechanism⁷ to sequester CO₂, EOR has the most near-term potential to facilitate the capture and associated storage of large volumes of CO₂ from anthropogenic sources.

In EOR, CO₂ is injected into formations which have contained hydrocarbons over millions of years. CO₂ injection is balanced by the removal of oil, which promotes a pressure equilibrium within the formation, and limits migration of CO₂ and brine away from the subsurface originally occupied by the hydrocarbon accumulation. The U.S. EOR industry has nearly 50 years of experience injecting CO₂ underground for the purpose of stimulating increased hydrocarbon production, which results in the CO₂ remaining safely trapped in subsurface formations. Both the U.S. Department of Energy (“DOE”) and the U.S. Environmental Protection Agency (“EPA”) recognize this history and the potential EOR operations hold for permanently sequestering large volumes of CO₂ emissions from the U.S. power and industrial sectors.⁸ It is accepted among the engineering and scientific community that the likelihood of leakage from the subsurface in EOR operations is extremely remote.⁹

Treasury also has an opportunity to clarify and correct inconsistencies in current Section 45Q guidance. Treasury adopted burdensome requirements that contradict stated policy from other federal agencies and created significant legal challenges for those companies that desired to take advantage of the 45Q Credit. Such uncertainty has prevented prior iterations of the Credit from realizing their full deployment potential. The absence of consistent guidance, which could serve to guide investment decisions, has added to the challenge of project development.

In Notice 2019-32, Treasury asks for comment on 10 specific questions. The EAC is providing detailed comments to Questions 1, 2, 3, 7, 8, and 9. Questions 4, 5, and 10 deal with non-EOR utilization of CO₂ and are outside the scope of issues EAC wishes to comment on at this time.

Q.01: Secure Geologic Storage

1. Background

In 2008, Congress enacted a carbon sequestration tax credit,¹⁰ which, as amended, provided an income tax credit for qualified carbon oxide placed into “secure geologic storage” (“SGS”). In Notice 2009-83, Treasury provided interim guidance for demonstrating SGS including rules regarding measurement at the source of capture and at the site of storage. At the time Notice 2009-83 was issued, geological storage was considered secure provided the taxpayer followed the 2006 Intergovernmental Panel on Climate Change (“IPCC”) guidelines.¹¹

⁷ Such disposal capitalizes on both physical and geochemical trapping. Physical trapping occurs via blockage of the upward migration of CO₂ due to impermeable cap rock and capillary forces in pore spaces forcing the retention of CO₂. 75 Fed. Reg. 77233-77234 (Dec. 10, 2010)

⁸ 75 Fed. Reg. 77233-77234 (Dec. 10, 2010)

⁹ See e.g., ISO 27916:2019 Annex A; Cooney, et al. “Evaluating the Climate Benefits of CO₂ Enhanced Oil Recovery Using Life Cycle Analysis,” *Environ. Sci. Technol.* 2015, 49, 7491-7500

¹⁰ Section 45Q.

¹¹ Notice 2009-83, § 5.02(b)(i).

Notice 2009-83 provided that taxpayers were required to meet these IPCC Guidelines until superseded by finalization of the expected EPA regulations on underground injection wells under the Safe Drinking Water Act (“SDWA”) and the Greenhouse Gas Reporting Program (“GHGRP”) under the Clean Air Act (“CAA”).¹² Once finalized, taxpayers were to follow those requirements in lieu of the IPCC guidelines as applicable to the taxpayer’s activities.¹³ The first of these subsequent regulations occurred when EPA finalized Underground Injection Control (“UIC”) regulations and created a new UIC Class VI well category for CO injection wells used for long-term storage.¹⁴ Notably, these regulations continued to treat EOR operations with no increased risk posed to Underground Sources of Drinking Water (“USDWs”) (such as injection wells designed for EOR) as UIC Class II wells.¹⁵

Next, the EPA’s Greenhouse Gas Reporting Program (“GHGRP”) then created two source categories of reporting for those who inject CO into the subsurface: (1) wells within which CO is injected for long-term containment in subsurface geologic formations;¹⁶ and (2) wells within which CO is injected into the subsurface (including for CO₂-EOR).¹⁷ The first source category of wells is governed by subpart RR of the GHG regulations, which focuses on facilities conducting geological sequestration of CO.¹⁸ The second source category of wells is governed by subpart UU of the GHG regulations, which focuses on the injection of CO into the subsurface including for EOR operations.¹⁹ Subpart RR is not applicable to CO injected into the subsurface in the course of EOR operations unless a well is permitted under Class VI or the operator has chosen to submit a proposed monitoring, reporting, and verification (“MRV”) plan to the EPA and received an approved plan from EPA.²⁰ As such, because the finalized EPA regulations replaced the IPCC requirements after publication, EOR operators could sufficiently demonstrate adequate SGS when meeting the requirements under UIC Class II, and by following GHG reporting rules UU, PP, W and C (if required) that track the quantity of CO supplied to the facility, injected, and emitted from the surface facilities.

Nonetheless, subsequent IRS positions have generated taxpayer uncertainty on the applicable standard for demonstrating SGS because those positions conflict with the prior guidance set forth in Notice 2009-83.²¹ Moreover, in 2016, Form 8933 limited the availability of the 45Q credit to situations where the taxpayer complied with subpart RR (including the MRV component), even though certain taxpayers (such as EOR operators with UIC Class II wells) were not otherwise required to do so under the applicable EPA GHG regulations. The Form’s instructions were

¹² Notice 2009-83, § 5.02(b)(ii) & (iii).

¹³ *Id.*

¹⁴ See 40 C.F.R. § 146.81(a).

¹⁵ 40 C.F.R. §§ 144.19 (a), 146.81(c).

¹⁶ 40 C.F.R. § 98.440(a).

¹⁷ 40 C.F.R. § 98.470(a).

¹⁸ 40 C.F.R. § 98.440 et. seq.

¹⁹ 40 C.F.R. § 98.470 et. seq.

²⁰ 40 C.F.R. § 98.440(c)(2).

²¹ In particular, the IRS issued (1) an unpublished advisory opinion without precedential effect in 2013, and (2) released ITS Memorandum 20183701F in 2018.



published without Treasury regulations, an opportunity for public comment, or the interagency consultation required by the statute.²² As a result, there has been considerable confusion among taxpayers further limiting both pre- and post-BBA industry participation in CCUS projects.

The EAC welcomes the opportunity to provide comment on how to clarify the definition of “secure geologic storage” for purposes of Section 45Q going forward.

2. Treasury should confirm that complying with UIC Class II requirements and reporting GHG emissions under GHGRP subparts UU, PP, W and C (if required) constitutes “secure geologic storage” for the purpose of Section 45Q.

Treasury should issue regulations defining “secure geologic storage” consistent with the prior interim guidance in Notice 2009-83, applicable EPA regulations, and the practical realities of EOR operations. Under Notice 2009-83, SGS is adequate for purposes of Section 45Q when the taxpayer follows the applicable EPA regulations under the SDWA and the CAA. The UIC Class II permitting process and existing regulations ensures the security of the subsurface containment, and the GHGRP reporting framework provides the appropriate mechanism for CO quantification and tracking consistent with state mineral property and natural resource conservation laws. Therefore, Treasury regulations should confirm EOR operators with Class II wells who follow all Class II UIC requirements and GHGRP subparts UU, PP, W and C (if required) have sufficiently demonstrated SGS.

For further discussion on the legislative, regulatory, and procedural history of the application of SGS for purposes of Section 45Q, please see the Appendix.

3. Treasury should not disallow prior Credits due to the introduction of additional approaches to demonstrate secure geologic storage. Should Treasury incorporate additional approaches, such approaches should only apply to post-BBA credits.

If Treasury allows for additional approaches to demonstrate “secure geologic storage,” such regulations should apply only to post-BBA claims for the Credit. Treasury should confirm taxpayers claiming pre-BBA Credits based on CO use as a tertiary injectant adequately demonstrate SGS when EOR operators with UIC Class II wells follow all UIC Class II requirements and GHGRP subparts UU, PP, W and C (as applicable).

The issuance of IRS’s revised Form 8933, with its requirement of subpart RR reporting for all taxpayers claiming the 45Q Credit, was inconsistent with applicable EPA regulations. The EPA determined that associated storage of CO incidental to hydrocarbon recovery would be treated under different regulations than CO injected into geological formations for the intentional storage

²² Under section 45Q(f)(2), “the Secretary, in consultation with the Administrator of the Environmental Protection Agency, the Secretary of Energy, and the Secretary of the Interior, shall establish regulations for determining adequate security measures for the geological storage of qualified carbon oxide under subsection (a) such that the qualified carbon oxide does not escape into the atmosphere.”



of CO. This is reflected in both the UIC Class II and VI programs differentiating between the two activities and in the GHGRP requiring RR only for UIC Class VI operations due to those operations having a differing risk profile. Currently, UIC Class II operations are only required to report under Subparts UU, PP, W and C (if applicable). Taxpayers meeting such requirements should be permitted 45Q Credits generated prior to the final promulgation of new rules or guidance on “secure geologic storage.”

4. For post-BBA 45Q Credit claims, Treasury should recognize the new ISO 27916:2019 standard as a mechanism to enhance data collection, transparency, and accessibility in a manner that is aligned with state mineral property and natural resource conservation laws, as well as accepted industry practices and commercial arrangements.

Treasury seeks comment on whether criteria other than EPA’s GHGRP can be used to demonstrate “secure geologic storage.” As stated above, taxpayers complying with the EPA existing and applicable UIC and GHGRP rules meet their reporting requirements for purposes of Section 45Q. For 45Q Credits claimed under the BBA, the International Organization for Standardization’s recently published standard, ISO 27916:2019 (the “ISO Standard”), should be recognized as a means of providing additional transparency in support of demonstrating containment assurance under the existing UIC Class II requirements and applicable GHGRP subparts UU, PP, W and C. The ISO Standard should be used as an addition to, and is not a replacement of, existing UIC Class II and GHGRP requirements.

ISO 27916:2019 contains a robust methodology for quantifying and documenting containment assurance of the total CO (and optionally, the anthropogenic portion of the CO) that is stored in association with CO₂-EOR. Predicated on international acceptance of EOR’s inherent CO₂ trapping characteristics as currently regulated, ISO 27916:2019 is an internationally recognized performance standard to quantifying and documenting the CO stored in association with CO₂-EOR. The standard was developed over a period of approximately five years with input from multiple national governments, global industries, and non-governmental organizations (“NGO”). The ISO Standard is “intended to facilitate documentation of the safe, long-term containment, and the quantification of associated storage.”²³ The ISO Standard “... applies to quantifying and documenting the total CO₂ that is stored in association with CO₂-EOR.”²⁴ Utilizing the ISO Standard would provide enhancements to data reporting (i.e. the mass-balance calculation) and to public transparency of containment assurance.

The ISO Standard provides a comprehensive approach under which operators show their work to quantify and document containment assurance of CO₂ stored in association with EOR. The standard requires that data be compiled and retained so that all the information is available in the event of an audit.²⁵ In addition, EAC supports enhanced public availability of non-CBI data

²³ ISO 27916:2019, clause 4.1

²⁴ ISO 27916:2019, Introduction

²⁵ ISO 24916:2019, clause 3.3 defines “authority.”

regarding EOR containment assurance associated with an operator's ISO 27916:2019 plan. The criteria for documentation and reporting required by the standard is comparable to the analogous EPA program. In addition to the existing applicable UIC and GHGRP rules addressed above, Treasury should make clear that 45Q Credit claimants who attest that CO₂ was handled in accordance with ISO 27916:2019 have satisfied the SGS requirement when such CO₂ is being used as a tertiary injectant for EOR. This assurance is justified because the ISO Standard, predicated on recognized and demonstrated CO₂ containment in EOR operations as currently regulated, is specifically based on existing oil field EOR operations and builds on current regulations to quantify and document containment assurance, project termination, and corrective action criteria.

5. Treasury should explicitly provide that a pre-approved MRV plan is not necessary for claiming credit under Section 45Q under existing regulations or under ISO 247916:2019.

As recognized by Notice 2019-32, Form 8933 “adds regulatory requirements for Class II UIC permit holders (enhanced oil recovery operations) who are not currently required to get an EPA-approved plan.”²⁶ Section 45Q should be administered in a manner that encourages participation and industry innovation by providing taxpayer certainty. Regulations issued pursuant to Section 45Q should thus align with existing EPA regulations that are applicable to EOR operators.

The EPA recognized the distinction between two CO₂ injection types. The first, dedicated and intentional CO₂ disposal operations through over-pressure of saline formations is covered by GHGRP subpart RR. The second, CO₂ injection for CO₂-EOR hydrocarbon production utilizing injection-withdrawal pressure equilibrium is covered by GHGRP subpart UU. As such, subpart RR is not applicable to CO₂ injected into the subsurface in the course of EOR operations unless the well is permitted under UIC Class VI²⁷ or the owner operator “injects the CO₂ stream for long-term containment in subsurface geologic formations and has chosen to submit a proposed monitoring, reporting, and verification (MRV) plan to EPA and received an approved plan from EPA.”²⁸

6. UIC Class VI projects should continue to qualify for the 45Q credit under existing EPA rules.

Subsequent to the publication of Notice 2009-83, EPA determined that CO₂ injected into geologic formations for the purpose of intentional storage may only be permitted under the new UIC Class VI and was required to be reported under GHGRP subpart RR. This superseded the IPCC guidelines as stipulated in the Notice. EAC does not propose any changes to the regulations governing long term, intentional storage when claiming the 45Q Credit.

²⁶ IRB 2019-21 at p. 1189

²⁷ 40 C.F.R. § 98.440(c)(1).

²⁸ 40 C.F.R. § 98.440(c)(2).

7. Conclusion

Treasury regulations should confirm EOR operators with UIC Class II wells who follow UIC Class II requirements and GHGRP subparts UU, PP, W and C (if applicable) have demonstrated SGS for the purpose of Section 45Q. As an improvement to the existing structure, ISO 27916:2019 can be used to enhance transparency in support of the demonstration of containment assurance for post-BBA credit claims. Additional approaches to demonstrating SGS should only apply to post-BBA credits. Prior claims to the 45Q Credit should not be prejudiced due to any future rulemaking by Treasury. Finally, UIC Class VI operations should continue to qualify for the Credit provided those operations follow their applicable EPA regulations.

Q.02: Recapture

Treasury should issue guidance that states that in the event of a net loss of qualified CO, a claimant should be responsible for reporting the net loss and associated amount of tax credit to recapture on its tax return for the tax year in which the net loss of qualified CO occurs. Such guidance should clarify that neither claimants to the 45Q Credit, nor entities using, utilizing, or disposing of qualified CO should be subject to recapture should a net loss of qualified CO occur due to a force majeure event.

Guidance should further specify that recapture should only apply for a period of three years from the time that the tax credit was claimed, which is generally consistent with audit requirements and recapture requirements for other tax credits. Accordingly, the maximum amount of Credit that can be reclaimed cannot exceed the prior three years of Credit claimed. The applicable dollar amount applied to determine the amount of Credit recaptured in the year a net loss of qualified CO occurs should be the same applicable dollar amount used to determine the amount of the credit in the tax year it was claimed following LIFO principles. This is a conservative approach that protects the Treasury, as Credits are recaptured at their highest value.

Q.03: Clarification of Terms

EAC requests that Treasury issue guidance clarifying the following terms in Section 45Q guidance:

1. Additional Capacity: Treasury should provide guidance on the appropriate standard for determining the “carbon dioxide capture capacity” of carbon capture equipment in place on the day before enactment of the 2018 Bipartisan Budget Act as defined by § 45Q(b)(2)(A)(ii). The determination should be based on the facts and circumstances of each qualified facility in place prior to the enactment of the BBA. It should also provide a safe-harbor equal to the lesser of the actual amount of carbon oxide captured in the tax year prior to the enactment of the BBA or the facility’s nameplate annual capacity.
2. Carbon Capture and Associated Equipment: Treasury should allow the project developer to define “carbon capture equipment” based on the needs of the specific project. For

example, some developers may be concerned about meeting the “beginning of construction” deadline under § 45Q(d)(1). A broader definition gives them flexibility on commencing construction on some aspect of the project. This can include all components necessary, including but not limited to, pipeline and associated equipment, to transport the qualified CO to the location where SGS occurs. Integrated projects for capture and injection at dedicated storage sites should also be permitted to include the injection site, the storage reservoir, as associated equipment in their definition of “carbon capture equipment” should they choose to make the election.

3. Post-BBA partial divestment, transfer, or sale of carbon capture equipment constructed:
In the case of partial divestment, transfer, or sale of an interest in an existing qualified facility, which installed additional post-BBA carbon capture equipment, Treasury should further reduce the qualified capture facility’s § 45Q(b)(2)(A)(ii) “carbon dioxide capture capacity” on a proportionate basis. As such the taxpayer should remain eligible for the credit to the extent the taxpayer’s annual post-divestment/transfer/sale volumes of CO captured exceeds such taxpayer’s pro-rata adjusted pre-BBA carbon dioxide capture capacity.
4. Section 45Q(f)(6) Election: As a threshold matter, a technical correction is required to fix the statutory language from “the person described in paragraph (3)(A)(ii)” to “the person described in paragraph (3)(A)(i).” Paragraph (3)(A)(ii) refers to the owner of carbon capture equipment placed in service on or after the date of enactment of the BBA, whereas paragraph (3)(A)(i) refers to the owner of carbon capture equipment placed in service before the date of enactment of the BBA. Given the purpose of the election, it is illogical to only allow the owner of carbon capture equipment placed in service on or after the date of enactment of the BBA to make an election to treat such equipment as placed in service on or after the date of enactment of the BBA. Treasury should clarify that there may be multiple persons who are the owners of carbon capture equipment or an applicable facility.

Section 45Q(f)(6) allows an election for an applicable facility, which was placed in service prior to the enactment of the BBA, provided that (1) facility is a qualified facility; (2) no taxpayer has previously claimed the 45Q Credit with respect to the facility; and (3) the facility captures not less than 500,000 metric tons of carbon oxide during the tax year. The § 45Q(f)(6) election allows an applicable facility to be treated as if it were placed in service on the day of enactment of the BBA. Treasury should clarify that the 500,000 metric ton carbon oxide capture threshold is measured at the facility level rather than at the owner level, *i.e.*, the taxpayer or partner level. Additionally, Treasury should clarify that once an applicable facility captures 500,000 metric tons in a tax year and makes the § 45Q(f)(6) election, then the facility is treated as being “originally” placed in service on the date of enactment of the BBA for all purposes of Section 45Q, including but not limited to, the capture levels provided under the definition of a qualified facility in Section 45Q(d)(2) and for purposes of Section 45Q(a)(4). Lastly, Treasury should provide guidance on how the § 45Q(f)(6) election is made, whether that is on a new version of Form 8933 or by a statement included with the taxpayer’s annual tax return.

Q.07: Transfer of the Credit

For an election to transfer the 45Q Credit to function properly, Treasury must clarify what constitutes a 45Q Credit. Specifically, Treasury should clarify that the Credit attaches to each metric ton of qualified carbon oxide that is captured and stored pursuant to the requirements. Under Section 45Q(f)(3), the person that captures qualified carbon oxide or owns the carbon capture equipment and physically or contractually ensures the disposal, utilization, or use as a tertiary injectant of such qualified carbon oxide is allowed to claim the 45Q Credit or may make an election to transfer the 45Q Credit to the person that disposes, utilizes, or uses as a tertiary injectant such qualified carbon oxide. Additionally, Congress provided Treasury the authority to issue regulations regarding the transfer of the credit. Treasury should issue regulations providing maximum flexibility in the transferability of the 45Q credit so as not to limit potential claimants within a carbon capture and sequestration project, including allowing transfer of all or a portion of the 45Q Credit to one or more persons.

The election to transfer the Credit provided in Section 45Q(f)(3)(B) and under future regulations issued by Treasury should be made in the tax year that the qualified carbon oxide is disposed, utilized, or used as a tertiary injectant. Such election should follow the procedures adopted in making a Code Section 338(h)(10) election. More specifically, Treasury should create a form or amend the current Form 8933 to be filed by all parties to the 45Q Credit transfer as part of their respective tax returns for the tax year in which the qualifying activity is completed. Such form should include the taxpayers names, employer identification number, and description of the underlying activity giving rise to the 45Q Credit and its transfer. This will allow for the Credit to be allocated among the parties on an annual basis. Treasury should specify the election to transfer the 45Q Credit is made on an annual basis.

Q.08: Beginning of Construction

“Beginning of construction” should be defined through guidance consistently between Section 45Q and other related renewable energy credits. The 45Q Credit is similar to the Section 45 and Section 48 renewable energy credits.

For the Sections 45 and 48 renewable energy credits, the IRS has issued extensive guidance and safe harbors defining the “beginning of construction”. Specifically, the IRS clarified that “beginning of construction” may be met through the (1) physical work standard, defined as the taxpayer commencing “physical work of a significant nature” on the facility, or (2) by meeting the five percent (5%) safe harbor standard, defined as the taxpayer incurring or paying for at least five percent of the ultimate tax basis of the project.

While the policy underlying the Section 45Q credit is similar to the Section 45 and 48 tax credits, commercial CCUS projects differ from, for example, wind and solar projects in important respects. One of the most significant differences is the substantially higher cost and complexity of a CCUS project. By way of comparison, the cost of a large utility scale wind farm in the 300 MW to 500 MW range would equal the cost of a relatively modest CCUS project, likely in the 200 MW



equivalent range. Similarly, such a wind farm could be brought online in only a few years, while the comparable CCUS project would likely require between six and eight years for completion. Accordingly, in establishing the “beginning of construction” safe harbor for CCUS, Treasury must consider the amount of money required to be invested in a CCUS project to qualify for a 5% safe harbor is significantly larger than for a comparable renewable project and would require the CCUS project to be further along in planning and design than a comparable renewable project. Therefore, the dollar amount required to be spent to qualify for the safe harbor should be based on three percent (3%) of the total cost estimated in a CCUS project’s Front End Engineering and Design (“FEED”) study for the carbon capture equipment. This will allow CCUS projects to qualify for the safe harbor at roughly the same time in project development that a comparable renewable project would qualify.

Additionally, the taxpayer will meet the “beginning of construction” standard if it demonstrates that it maintained a “continuous program of construction” to satisfy the physical work standard, or made “continuous efforts to advance towards completion of the facility” to satisfy the 3% percent safe harbor. *See e.g.*, Notice 2013-29, Notice 2013-60, Notice 2014-46, Notice 2015-25, Notice 2016-31, Notice 2017-04, and Notice 2018-59.

In regard to the “continuous” requirement, Notice 2016-31 provides a non-exclusive list of excusable disruptions that would allow a taxpayer to maintain its “continuous program of construction” or its “continuous efforts in advancing towards completion of the facility.” The list includes, but is not limited to, delays in obtaining permits or licenses, delays in the manufacturing of custom components, financing delays, and supply shortages. Treasury should issue guidance similar to Notice 2016-31 with respect to satisfying the “continuous” requirement of constructing qualified facilities under Section 45Q.

Activities that constitute “physical work of a significant nature,” which apply to renewable projects, should also apply to qualified CCUS projects. Additionally, Treasury should allow activities unique to CCUS projects to qualify as “physical work of a significant nature,” including but not limited to, well drilling, permitting, and site characterization for CO storage sites consistent with the requirements of the EPA UIC Class VI program, site preparation and demolition, beginning work on major equipment foundations, and the beginning of needed utility work (*e.g.*, laying electric lines, trenching and laying pipe for water, etc.).

Cost categories that qualify as project costs for renewable projects should also apply to qualified CCUS projects. However, a significant difference between renewable projects and CCUS projects is the complexity in the engineering required to build a capture facility. Creating the detailed engineering documents necessary to build a capture facility can take many years at a cost of millions of dollars. For this reason detailed engineering work for a CCUS project should not be precluded from the 3% under the exemption for “preliminary activities.” Additionally, Treasury should allow cost categories unique to CCUS projects to qualify in meeting the 3% safe harbor, including but not limited to, placing orders on long lead time equipment such as compressors, regenerator vessels, and other custom equipment, securing right of way for pipelines, and contracting the mobilization of heavy construction equipment. Unlike in the renewables sector,



most carbon capture equipment is not “off the shelf” and is custom built to the highly specific needs of each project.

Treasury should take a flexible viewpoint on the phasing of construction and commissioning of carbon capture equipment. Each facility is a large and complex engineering project and it is likely that projects involving large volumes of CO to be captured and used as a tertiary injectant for EOR, for example, will need multiple capture plants to provide optimal operating conditions and capture as much CO as possible from a single point source. We believe it is appropriate for the project developer to decide if an individual capture plant or the entire capture complex is to be considered under the beginning of construction guidance.

In conclusion, adapting the Section 45 and 48 “beginning of construction” guidance to the Section 45Q context would avoid discrepancies between interpretation of similar terms within the Code, provide claimants more certainty, and help achieve parity between the Section 45Q credits and the Section 45 and 48 credits. For Section 45Q purposes, “beginning of construction” would be established when a taxpayer (1) commences physical work of a significant nature on the qualified facility, or (2) meets a three percent (3%) safe harbor, whereby 3% of the taxpayer’s ultimate tax basis of the carbon capture facility, as identified in the FEED, is paid or incurred, and (3) demonstrates that it maintained a continuous program to satisfy the physical work standard, or made continuous efforts to advance towards completion of the facility until the qualified facility is placed in service.

Q.09: Partnerships

Partnership structure guidance should be provided in substance that is similar to Rev. Proc. 2007-65 for renewable wind projects under Code Section 45. Such guidance would provide a safe harbor for project developers and participating investors relating to those activities giving rise to the 45Q Credit. Specifically, it would provide guidance in a number of areas, including: (1) definition of investors who will earn all or part of the 45Q Credit and whether they will be deemed partners in a tax partnership, (2) investor’s minimum unconditional investment, (3) limitations on contingent consideration, (4) parties’ purchase rights, (5) parties’ sale rights, (6) guarantees and loans, and (7) how the 45Q Credit is required to be allocated. Further, such guidance should also include safe-harbors under Section 482 concepts permitting for the benefits of the 45Q Credit to be realized by any party, including those providing transportation services, that is part of the capture-to-sequestration chain.



Appendix: Selected Regulatory and Legislative History on “secure geologic storage” under Section 45Q

The Emergency Economic Stabilization Act of 2008 (P.L. 110-343)

Congress created the carbon oxide (“CO”)²⁹ sequestration credit under Section 45.³⁰ The credit is available when qualified CO is disposed in “secure geologic storage” (“SGS”). As amended, the statute directs the Secretary of the Treasury is directed by the statute to consult with the Environmental Protection Agency (“EPA”), the Department of Energy (“DOE”), and the Department of the Interior (“DOI”) to establish regulations for determining adequate security measures for the geological storage of CO, such that CO does not escape into the atmosphere.³¹ While the statute does not define SGS, it does state that the term includes storage at deep saline formations, oil and gas reservoirs, and unminable coal seams.³² Notably, Treasury has not issued regulations under Section 45Q.

Notice 2009-83

At the time Notice 2009-83 was issued, geological storage was considered adequately secure under the site sequestration rules if the taxpayer completed, at the appropriate frequency, specific activities described in 2006 Intergovernmental Panel on Climate Change (“IPCC”) guidelines.³³ Taxpayers were required to meet these IPCC guidelines until superseded by expected EPA regulations on underground injection wells under the Safe Drinking Water Act (“SDWA”) and on the reporting of emissions of CO under the Clean Air Act (“CAA”).³⁴ Once these new SDWA regulations and new CAA regulations were finalized and published, taxpayers were to follow those requirements in lieu of the IPCC guidelines as applicable to the taxpayer’s activities.³⁵

EPA Regulations

After the release of Notice 2009-83 the EPA published new Underground Injection Control (“UIC”) regulations under the SDWA.³⁶ The finalized UIC regulations created a new UIC Class

²⁹ Prior to the 2018 amendment, the carbon oxide credit was referred to as the carbon dioxide (“CO”) credit, and applied to carbon dioxide, rather than carbon oxide. For ease of reference, all references in this document use the CO abbreviation.

³⁰ Unless otherwise noted, all section references are to the Internal Revenue Code of 1986, as amended.

³¹ IRC § 45Q(d)(2).

³² *Id.*

³³ Notice 2009-83, §5.02(b)(i).

³⁴ Notice 2009-83, §5.02(b)(ii) & (iii).

³⁵ *Id.*

³⁶ The EPA’s UIC program was established in the 1970s to prevent endangerment of underground sources of drinking water (“USDWs”) from injection of various fluids, including CO₂ for EOR, oil field fluids, and municipal or industrial waste. The UIC program is designed to prevent the movement of such fluids into USDWs by addressing potential pathways through which injected fluids can migrate and potentially endanger USDWs.

VI well category for CO₂ injection wells used for long-term storage.³⁷ The UIC regulations set minimum technical criteria for UIC Class VI wells to protect USDWs from endangerment.³⁸ The final UIC regulations continued to treat operations with no increased risk posed to Underground Sources of Drinking Water (“USDWs”), including Acid Gas Injections (“AGI”) wells and injections wells designed for EOR as UIC Class II wells.³⁹ In determining if there is an increased risk to USDWs, owners/operators are instructed to consider specific risk-based factors provided in the regulations which specifically include an increase in reservoir pressure within the injection zone and a decrease in reservoir production rates (i.e. where the injection-withdrawal ratio declines if CO₂ fluid injections were no longer offset by comparable fluid withdrawals from the hydrocarbon production operation).⁴⁰ Accordingly, those EOR and AGI projects that do not pose an increased risk to USDWs are not affected by the UIC Class VI rules. Operators with UIC Class II wells are not subject to the rules of UIC Class VI. Therefore, Notice 2009-83 did not obligate UIC Class II operators to meet the UIC Class VI requirements to demonstrate eligibility for the credit.⁴¹

Afterwards the EPA published guidance on the Greenhouse Gas Reporting Program (“GHGRP”), which divided the original proposed subpart RR into two subparts: subpart RR reporting for dedicated storage of CO in facilities that conduct geologic sequestration and subpart UU reporting for the associated CO storage incidental to EOR operations and other purposes.

The EPA clearly recognized the distinction between dedicated, intentional CO over-pressure disposal operations (subpart RR) versus CO injection for CO₂-EOR hydrocarbon production utilizing the injection-withdrawal based pressure equilibrium that also results in associated storage in the project reservoir (subpart UU). As such, subpart RR is not applicable to CO injected into the subsurface in the course of EOR operations unless the well is permitted under Class VI⁴² or the owner operator “injects the CO stream for long-term containment in subsurface geologic formations and has chosen to submit a proposed monitoring, reporting, and verification (MRV) plan to EPA and received an approved plan from EPA.”⁴³

³⁷ See 40 C.F.R. §146.81(a).

³⁸ Federal Requirements under the UIC Program for CO₂ Geological Sequestration Wells, 75 Fed. Reg. 77230 (Dec. 10, 2010); See 40 C.F.R. §§146.81 – 146.95 (2012) for specific criteria.

³⁹ *Id.*

⁴⁰ 40 C.F.R. §144.19; When an increased risk is identified, the owner/operator must notify the EPA of his intent to seek a Class VI permit. Further, the EPA has the discretion to make this determination in the absence of owner/operator notification, and, in doing so, may require the owner/operator to apply for and obtain a Class VI permit in order to continue injection operations. See 75 Fed. Reg. 77230. See also EPA’s Response to Comments filed in the Class VI rulemaking, at 15, where EPA explains its concerns over pressure build-up in Class VI operations where the purpose is storage as opposed to traditional EOR operations (“Class VI GS reservoir pressures will increase more in comparison to Class II ER during the injection phase of the GS project”).

⁴¹ “When the proposed geologic sequestration [GHG Reporting] rules are finalized, such rules (or any successor rules) will apply in addition to the final UIC program rules (to the extent applicable), and the requirements of the IPCC Guidelines under paragraph (i) will no longer apply.” Notice 2009-83, §5.02(b)(iii).

⁴² 40 C.F.R. § 98.440(c)(1).

⁴³ 40 C.F.R. § 98.440(c)(2).



Accordingly, because the finalized EPA regulations replaced the IPCC requirements after publication, EOR operators could demonstrate SGS when meeting the requirements under UIC Class II, and by following GHGRP subparts UU, PP, W and C (if required) that track the quantity of CO supplied to the facility, injected, and emitted from the surface facilities.

Subsequent IRS Positions

In 2013, the IRS issued an unpublished Advisory Opinion without precedential effect, rejecting a taxpayer's use of CO in certain EOR projects and stating that it failed to qualify as secure geological storage under Section 45Q(a)(2)(C) and Notice 2009-83. The IRS expanded the position further in the 2016 with revisions to Form 8933. Unlike prior versions of the form, Form 8933 stated that taxpayers must comply with the subpart RR requirements (including securing a pre-approved MRV plan) to be eligible for the credit.⁴⁴ In addition, the revised form includes the requirement that "[t]he annual amount of the carbon dioxide claimed for the credit must be reconciled with amounts reported to the U.S. Environmental Protection Agency (EPA) under its Greenhouse Reporting Program, subpart RR."

In 2018, the IRS released IRS Memorandum 20183701F related to a taxpayer's application for the CO Sequestration Credit. Again, the IRS memorandum restricted the taxpayer's ability to take the CO Sequestration Credit; it denied the credit for the taxpayer using CO as a tertiary injectant for an EOR project on the grounds the IRS's position that "secure geological storage," as defined under Notice 2009-83, required the taxpayer to comply with subpart RR. The IRS again stated that for CO injected after December 31, 2010, Notice 2009-83 required an owner or operator of an EOR project to meet subpart RR and that the taxpayer could have been compliant with subpart RR (*i.e.*, by obtaining EPA approved MRV plan for each of its EOR projects and following the reporting requirements of subpart RR).

Past EPA Commentary

EPA statements made in an April 23rd, 2015 memorandum⁴⁵ (and reaffirmed in subsequent EPA rulemakings) are inconsistent with such IRS positions. Prior to the IRS' form change in 2016, the EPA had made numerous public statements highlighting its recognition that CO₂-EOR inherently results in associated storage of CO incidental to hydrocarbon production operations. Among these statements, the EPA has stated that "CO₂ storage with Class II wells is a common occurrence and CO₂ can be safely stored where injected through Class II - permitted wells for the purpose of enhanced oil or gas-related recovery."⁴⁶

⁴⁴ Compare Forms 8933 for each of the prior years with the 2016 revision. Contrary to all prior year forms, the 2016 revised Form 8933 stated that after 2010: "Secure geological storage requires approval by the EPA of a Monitor, Report and Verify Plan (MRV Plan) submitted by the operator of the storage facility or tertiary injection project."

⁴⁵ "Key Principles in EPA's Underground Injection Control Program Class VI Rule Related to Transition of Class II Enhanced Oil Recovery or Gas Recovery Wells to Class VI", April 23, 2015. Available at:

https://www.epa.gov/sites/production/files/2015-07/documents/class2eorclass6memo_1.pdf

⁴⁶ 80 Fed. Reg. at 64588.